



Economic and Social Council

Distr.: General
5 April 2013

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

160th session

Geneva, 25-28 June 2013

Item 4.6.4 of the provisional agenda

**1958 Agreement – Consideration of draft amendments
to existing Regulations submitted by GRSP**

Proposal for Supplement 7 to the 04 series of amendments to Regulation No. 44 (Child restraint systems)

Submitted by the Working Party on Passive Safety *

The text reproduced below was adopted by the Working Party on Passive Safety (GRSP) at its fifty-second session. It is based on ECE/TRANS/WP.29/GRSP/2012/21, as amended by Annex V to the report (ECE/TRANS/WP.29/GRSP/52, para. 31. and ECE/TRANS/WP.29/GRSP/52/Corr.1). It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee AC.1 for consideration.

* In accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208/, para. 106 and ECE/TRANS/2010/8, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

Contents, list of Annexes,

Insert a new Annex 23, to read:

"23 Load application devices..... "

Text of the Regulation,

Paragraph 2.8.1., amend to read:

2.8.1. "Lap strap" means a strap which, either in the form of a complete belt or in the form of a component of such a belt, passes across the front of, and restrains, directly or not, the child's pelvis;

Paragraph 6.2.1.5., amend to read:

"6.2.1.5. For all forward-facing group I restraints incorporating an integral harness belt system to prevent submarining, either by impact or through restlessness, a crotch strap shall be required."

Paragraph 6.2.2., amend to read:

"6.2.2. For groups I, II and III, all restraint devices utilizing a "lap strap" must positively guide the "lap strap" to ensure that the loads transmitted by the "lap strap" are transmitted through the pelvis. The assembly shall not subject weak parts of the child's body (abdomen, crotch, etc.) to excessive stresses."

Insert new paragraphs 6.2.2.1. and 6.2.2.2., to read:

"6.2.2.1. With the crotch strap attached and in its longest position if adjustable, it shall not be possible to adjust the lap strap to lie above the pelvis of both the smallest and largest dummy within the mass groups covered by the approval. For all forward-facing restraints, it shall not be possible to adjust the lap strap to lie above the pelvis of both the smallest and largest dummy within the mass groups covered by the approval.

6.2.2.2. During the dynamic test, as prescribed in paragraph 8.1.3., the lap belt shall not pass fully beyond the pelvic structure of the dummy, during the period prior to maximum horizontal head excursion. Assessment shall be carried out using high speed video imaging."

Paragraph 6.2.4., amend to read

"6.2.4. The design shall be such that compression loads shall not be imposed on the crown of the child's head in the event of a collision."

Paragraph 7.1.3.1., amend to read

"7.1.3.1. The child restraint shall be tested as prescribed in paragraph 8.1.2.; at no point during the whole test shall the manikin be fully ejected from the device, in addition when the test seat is in the upside down position the manikin's head shall not move more than 300 mm from its original position in a vertical direction relative to the test seat."

Paragraph 8.1.2.1., amend to read:

"8.1.2.1. The manikin shall be equipped with the load application device as described in Annex 23 and placed ... paragraph 8.1.3.6. below, applied for all systems identically."

Paragraph 8.1.2.2., amend to read:

"8.1.2.2. The restraint shall be fastened to the test seat or vehicle seat. The whole seat shall be rotated around a horizontal axis, contained in the median longitudinal plane of the seat through an angle of $540^{\circ} \pm 5^{\circ}$ at a speed of 2-5 degrees/second and stopped in this position. For the purposes of this test, devices intended for use in specific cars may be attached to the test seat described in Annex 6."

Insert new paragraphs 8.1.2.3. to 8.1.2.5., to read:

"8.1.2.3. At this static inverted position a mass equivalent to 4 times that of the dummy shall be applied vertically downwards in a plane perpendicular to the axis of rotation in addition to the dummy utilizing the load application device described in Annex 23. The load shall be applied in a gradual controlled manner at a rate not exceeding gravitational acceleration or 400 mm/min. Maintain the prescribed maximum load for a duration of 30 -0/+5 seconds.

8.1.2.4. Remove the load at a rate not exceeding 400 mm/min and measure displacement.

8.1.2.5. Rotate the whole seat for 180° to return to the starting position."

Paragraph 8.1.2.3.and 8.1.2.4.(former), renumber as paragraphs 8.1.2.6. and 8.1.2.7. and amend to read:

"8.1.2.6. This test cycle shall be carried out again rotating in the reverse direction. With the rotational axis in the horizontal plane and at 90° to that of the two earlier tests, the procedure shall be repeated in the two directions of rotation.

8.1.2.7. These tests shall be carried out using both the smallest and the largest appropriate manikin of the group or groups for which the restraining device is intended.

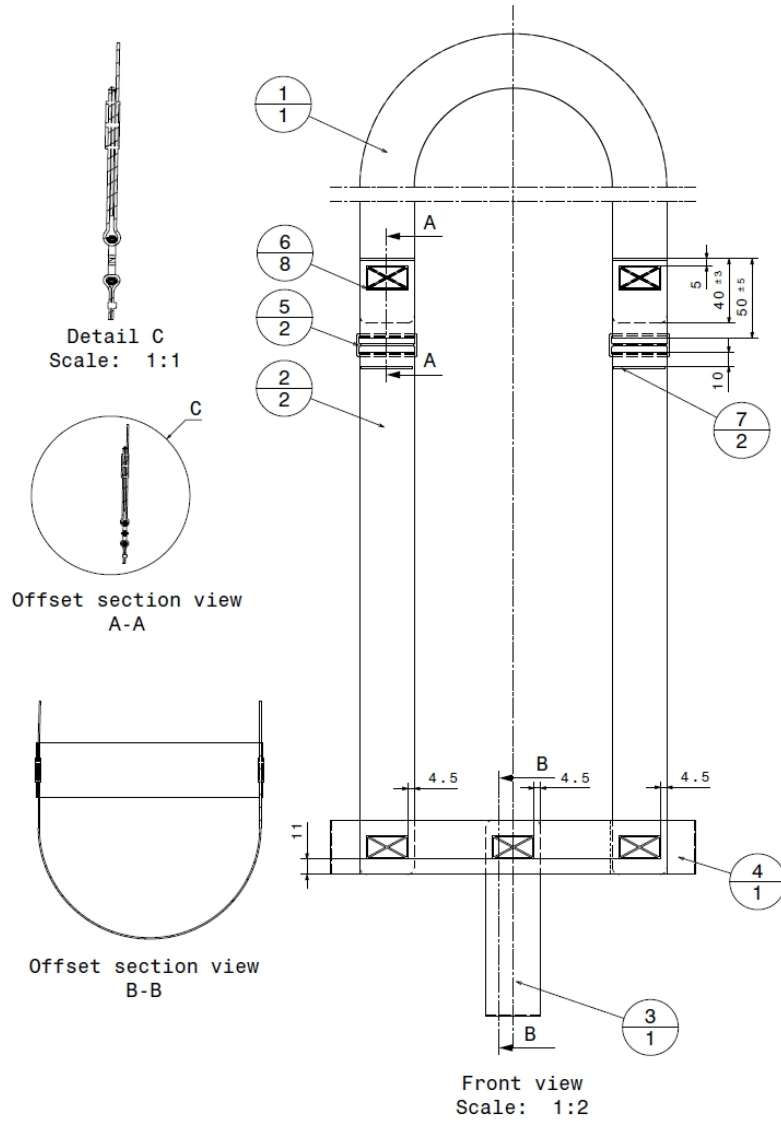
Any adjustment of the dummy or child restraint systems during the complete test cycle is not allowed."

Insert a new Annex 23, to read:

"Annex 23

Load application devices

Load application device I (to be used for Group 0 / 0+ products)

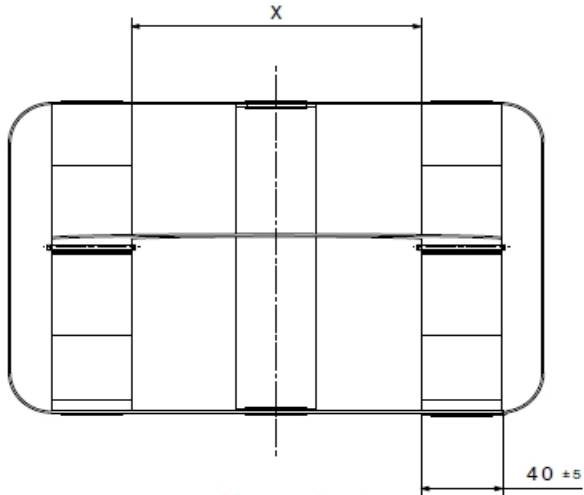


No.	Name	Information	Quantity
1	head belt - 39mm	-	1
2	shoulder belt lh/rh - 39mm	-	2
3	crotch belt - 39mm	-	1
4	hip belt - 39mm	-	1
5	stitch pattern (30x17)	stich: 77, thread: 30	8
6	plastic buckle	-	2
7	stitch pattern (2x37)	stich: 77, thread: 30	2

stretch lenght	(+/-5mm)					
	Dummy P/Q 0	Dummy P/3/4	P/Q 1,5	P/Q 3	P/Q 6	P/Q 10
head belt	1000mm	1000mm	1000mm	1200mm	1200mm	1200mm
shoulder belt	750mm	850mm	950mm	1000mm	1100mm	1300mm
crotch belt	300mm	350mm	400mm	400mm	450mm	570mm
hip belt	400mm	500mm	550mm	600mm	700mm	800mm
dimension X	120mm	130mm	140mm	140mm	150mm	160mm

stich pattern	min. required force
12x12mm	3,5 kN
30x12mm	5,3 kN
30x17mm	5,3 kN
30x30mm	7,0 kN

all belt radius = 5mm

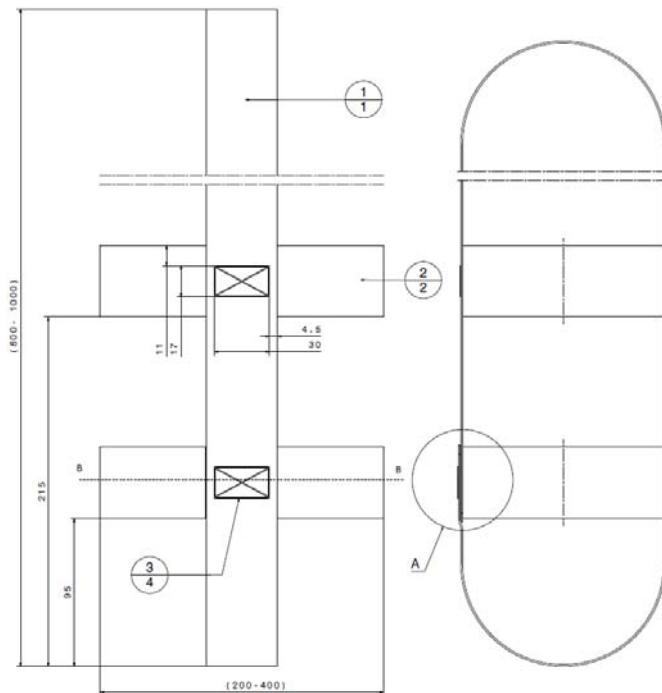


Top view
Scale:1:2



Isometric view
Scale:1:10

Load application device II (to be used for Group 1)

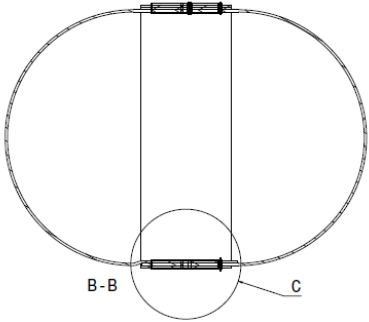
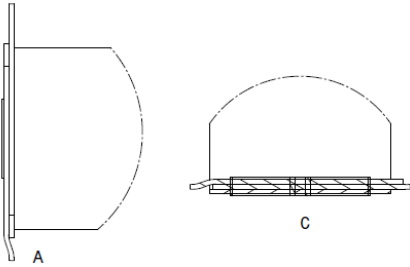


No.	Name	Information	Quantity
1	main belt - 39mm	-	1
2	hip belt (upper/lower) - 39mm	-	2
3	stitch pattern (30x17)	stich: 77, thread: 30	4

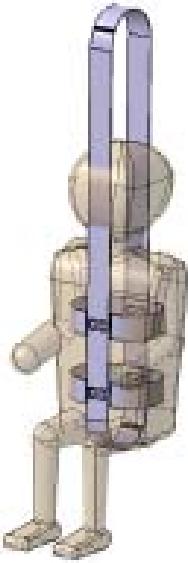
stretch length	(+/-5mm)					
	Dummy P/Q 0	Dummy P/S/4	P/Q 1,5	P/Q 3	P/Q 6	P/Q 10
main belt	1600mm	1600mm	1600mm	2000mm	2000mm	2000mm
hip belt	440mm	540	640mm	740mm	740mm	840mm

stich pattern	min. required force
12x12mm	3,5 kN
30x12mm	5,3 kN
30x17mm	5,3 kN
30x30mm	7,0 kN

all belt radius = 5mm



Top view
Scale:1:2



Isometric view
Scale:1:10

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